

BOROUGH OF PRESTON.



# ANNUAL REPORT

OF THE

## MEDICAL OFFICER OF HEALTH

TO THE

URBAN AND PORT SANITARY AUTHORITIES,

FOR THE

Year ending December 31st, 1897.



H. O. PILKINGTON,

MEDICAL OFFICER OF HEALTH,

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# *Report of the Medical Officer of Health.*



TO THE CHAIRMAN AND MEMBERS OF THE URBAN AND  
PORT SANITARY COMMITTEES.

GENTLEMEN,

The rate of mortality is often taken as the standpoint from which to judge of the sanitary condition of a given town or district, and from this point of view it must be acknowledged that during the past year of 1897, Preston compares but unfavourably with her position during recent years, and more especially with her position during the immediately preceding year of 1896, when it may be remembered that the death rate was lower than that of any year for which reliable statistics were available. The cause—or rather the causes—for this increase in the rate of mortality will be more fully considered later on, when the various diseases, which have combined to raise the yearly rate of mortality, will be dealt with separately and in their usual order. Here it will be sufficient to say that the increased death rate was confined to the infantile population, and that it was mainly to a severe epidemic of Measles, succeeded by a more than usually fatal season of Summer Diarrhœa, that the higher rate of mortality must be attributed.

Some discrepancy, which may be observed between the total number of deaths given in Tables No. 1 to 4, in Table No. 9, and in Table No. 14, is due to the fact that in the first named group of Tables the deaths are confined to residents in the Borough, but being compiled from the weekly mortality sheets this return deals with a period of 53 weeks, in Table No. 9 the figures of the Registrar-General are adopted, and these embrace the deaths at the Fulwood Workhouse of persons formerly resident in the town, while Table No. 14 (although giving the last named figures separately) deals in the main with the mortality which has occurred within the Borough from January 1st to December 31st, 1897.

The third quarter of the year was the one in which was recorded by far the heaviest death rate, and this on account of the prevalence during that time of the two diseases—Measles and Diarrhœa—to which allusion has already been made.

From Small Pox the town remained entirely free throughout the whole of the year, although towards its close the outbreak in the Middlesborough district served as a warning to show how rapidly this disease will spread, when once introduced into a community imperfectly protected by Vaccination. Although Preston, from the nature of its trade, has but little communication with the large centres of the iron industry, the possibility of infection being imported by workmen in search of employment was not overlooked, and a strict watch was kept upon the Common Lodging Houses—places in which has so often been found the initial case, the possible herald of a future outbreak. Fortunately, however, no importation of the disease occurred, and, though some towns in the immediate neighbourhood of Middlesborough have been invaded, it would appear at the present time that the severity of the epidemic has been overcome, and the chances of its spreading proportionately decreased. But whenever Small Pox is present in any part of the Kingdom, there is always a possibility of the infection being conveyed to towns even at a considerable distance, and this fact should be borne in mind by those to whom has been entrusted the administration—and if necessary the enforcement—of the Vaccination laws. A town in which all the inhabitants have been protected by efficient Vaccination is in the best possible condition to prevent the introduction of the infection, or if even if it should obtain a footing, the work of limiting and suppressing its extension is rendered comparatively easy.

From “Fever” a total of 35 deaths was recorded, of which a great proportion occurred towards the close of the year. The number of cases notified by Medical certificate was 202, so that the per centage of fatal cases did not exceed 17·32. With the exception of a few instances of Infantile Remittent Fever, and one of Typhus, all the cases were reported as Typhoid or Enteric Fever. The solitary case of Typhus—a disease happily of very rare occurrence in Preston—was that of an Irish harvestman, who, developing the Fever in the country where he was working, was at once removed to the Royal Infirmary, and there died.

As is usually the case with Typhoid Fever, a large proportion of those affected were young persons, or those still on the right side of middle age; and as regards locality both sickness and mortality were fairly distributed over all parts of the town. An investigation was made into the circumstances of each case as it was notified, but no common cause—such as a tainted milk or water supply—could at any time be discovered.

In a few instances the disease affected more than one member of a family, and in two well marked instances the infection was conveyed from one member of the family to another, until eventually all had passed through the ordeal.

This transmission of the infectious germs was probably the result of a want of due precaution in dealing with the discharges from the patient's bowels, the material by which



the poison is, in the majority of cases, passed on from the sick to the healthy. This forms the great danger attendant upon the nursing of a case of Typhoid Fever in a small cottage house, more especially if the family is a large one, and can only be combatted by a regular, systematic, and judicious use of disinfectants.

In dealing with the various cases of Typhoid Fever, as notified by Medical certificate, use was made of the accommodation afforded by the Harris Wards, and where the circumstances shewed that the case might prove of danger to the Public Health, or where request for removal was made by the friends of the patient, the latter was at once removed to this Institution. October and the early part of November were the seasons in which occurred the greatest number of cases of Typhoid Fever, and this bears out the theory that a Summer, marked by a severe outbreak of Diarrhœa, is often followed in the Autumn by an epidemic, or at any rate by a more than usually severe incidence, of Typhoid Fever.

From Scarlet Fever the rates both of sickness and mortality were alike low, the deaths of only 5 children being attributed to this cause. These occurred at various times throughout the year, and were confined to Park, Fishwick and St. John's Wards. But the occurrence of each case became a source of danger to the community, since Scarlet Fever is one of the diseases which are seldom entirely, and never very long, absent from all large towns, so that the longer the interval of immunity, the greater becomes the chance of an outbreak. It is a disease readily conveyed from one child to another, and one the poisonous germs of which are capable of being transmitted in an infinite variety of ways. It was only by enforcing strict isolation, and by adopting all possible precautions that on each occasion the smouldering—but still dangerous—sparks were quenched before bursting into flame. I dwell upon this because it is now some years since Preston suffered from a Scarlet Fever epidemic, and because there must needs be on this account a large infantile population susceptible of infection. A single case concealed may become the means of spreading the disease over the whole town, and every assistance should therefore be given to the Sanitary Authority in its efforts to protect the Public Health.

In none of the other large towns was Scarlet Fever prevalent during the past year, though few, if any, could show so low a rate as that of Preston. Probably it is owing to improved sanitation, and to the more general adoption of sanitary precautions, that outbreaks of Scarlet Fever are less frequent than in former years, and it is owing to these causes, and to improved methods of treatment, that the percentage of deaths has been lowered. But there is reason to believe that the type of disease now met with is much less severe and fatal than that which prevailed some ten or fifteen years ago, when the malignant form was much more frequently met with.

In my last Annual Report—that for 1896—I drew attention to the fact, that by the law of averages, the town was again ripe for an attack of Measles, and towards the end of May it became evident that the implied prediction was about to be fulfilled. In the week ending May 19th, 4 deaths occurred from Measles in St. Peter's Ward, and from this time until nearly the end of September the epidemic raged throughout the town, although all parts were not affected at the same time, or with quite the same degree of virulence.

Beginning, as I have said, in St. Peter's Ward, the wave of disease, contrary to its usual course as seen in former years, swept next over the centre and western sides of the Borough, Fishwick and St. John's Ward being the last districts to be affected, but eventually suffering as severely, both as regards sickness and mortality, as any of the other divisions. As the disease is one of early childhood, the deaths were almost entirely confined to children under the age of 5 years, the period 1 to 2 years being that in which the greatest mortality was observable. Many of the deaths, in which the primary cause was properly certified to be Measles, and which were therefore classified under that heading, were undoubtedly the result of some complication, such as Bronchitis or Pneumonia, brought on by want of proper care and nursing during the period of convalescence. It is this susceptibility to colds and affections of the chest which so greatly increases the mortality amongst the children of the poorer classes, probably because the parents have neither the time, nor the house accommodation, required for the protection of a child during the lengthy period of recovery after Measles.

From the very commencement of the outbreak, notices were sent to the Managers and Teachers of the various Public Schools, requesting them to exclude all infected children, as well as those living in houses in which there was reason to believe the disease was present. Later on it was decided to close the Schools, and this was done for a period of one month, the holidays being practically extended from August 27th to September 27th. The value of this course of action, especially in towns in which the disease has obtained a firm footing, is very doubtful, since no attempt is made to prevent children from visiting infected houses, or from playing with other children who are known to be only just in the early stage of recovery. Again the appearance of an epidemic raises the question as to whether or not Measles should be included in the list of diseases for which compulsory notification is required. One argument—and to my mind one of the best arguments—in favour of this course is that inclusion would serve to remind parents that the disease is not the trivial and unpreventable one that so many of them deem it to be; but on the other hand, experience has shown that the results obtained are in no way commensurate with the expenditure of time and money which the proper carrying out of the law demands.

In rural districts, villages, and small urban communities, the information obtained might enable an Authority to prevent or cut short an epidemic, but in large towns the



mischiefs has, in the majority of cases, been done before the Certificate reaches the Sanitary Department.

Much information may be obtained from the School Attendance Officers, and therefore inter-communication should be maintained between them and the Sanitary officials. This was done during the past year, and in addition, cards and handbills were distributed from house to house, and placards were publicly posted, giving short instructions as to the prevention and general treatment of Measles, and pointing out the penalties incurred by anyone exposing an infected person or article to the danger of the Public Health. Throughout the year, Measles was prevalent in most parts of Lancashire, though in none of the other towns was the rate of mortality so heavy as in Preston, where it reached 2·76 per thousand, Salford being next highest with a rate of 2·22, after which came Bolton, Burnley, Manchester, and Blackburn.

Altogether the epidemic of Measles caused 282 deaths, all of which were those of children under the age of 10 years, nearly one half, as already stated, being between the ages of 1 and 2 years.

This of itself represents a heavy Infantile death rate, but following closely upon the track of the Measles epidemic came the Summer Diarrhœa, a disease which every year accounts for so many Infantile deaths, and which during the past year, although confined within shorter limits of time, exceeded in severity the outbreaks of almost any previous year.

The Chart appended to this Report shows how immediately after the ground temperature, at a depth of 4 feet, had reached the fatal height of 56 degrees, the Diarrhœal deaths at once rose, attaining their maximum point about the end of August and beginning of September; so that out of 294 deaths registered as due to Diarrhœa 226 occurred within the two months from August 1st to September 25th, while of the total number no less than 268 were those of infants under the age of 12 months.

The causes, both direct and contributory, to this Diarrhœal death rate amongst the infant population have been described and discussed in former Reports, nor was there anything in the severe outbreak of last year which in any way differs from the circumstances attendant upon the outbreaks of former years. Children of the same age period, offspring of the same working classes, and living in the same localities, and under the same conditions, were those who again furnished a large proportion of the fatal cases.

It is however satisfactory to find—and anything of a satisfactory nature in connection with Infantile Diarrhœa may well be emphasized—that the districts in which the old privy-midden system has been superseded by that of water carriage, were those which showed the most improvement in this respect.

In many other towns the Diarrhœal death-rate was a heavy one, but Hull was the only other large town in which, as in Preston, the rate amounted to 2·23 per thousand, though Wolverhampton—2·11, Salford—2·00, Birmingham—1·99, Liverpool—1·93, and several other towns with rates somewhat lower, suffered severely in this respect.

The mortality from Whooping Cough was by no means excessive, and this is a matter somewhat supprising, and certainly one for congratulation, since it is a disease so frequently found attendant, or following, upon an epidemic of Measles. Of the 30 deaths attributed to this cause, the greater part occurred towards the beginning of the year, and before the outbreak of Measles had made itself felt. The death-rate amounted to 0·26 per thousand, and was exceeded in a great majority of the large towns.

Diphtheria is one of the Zymotic diseases from which Preston may at all times claim to be fairly well exempt, but the deaths during the past year—4 in number—were less than the average of former years. The cases of sickness were 24, thus showing a fatal result of 1 in every 6, whilst the rate per thousand 0·03, was lower than that of any of the other large towns. All the deaths were those of children between the ages of 5 and 10 years, and were registered as 3 in Fishwick, and 1 in St. John's Ward.

From the Zymotic diseases—those so far referred to—the mortality amounts to 5·63 per thousand of the population, an unusually heavy rate, but one almost entirely accounted for by the combined fatality from Measles and Diarrhœa. The appended plans give further information as to the exact situation of the deaths from these Zymotic diseases.

Erysipelas is an infectious disease, and one for which notification is required, although the expediency or otherwise, of retaining it upon the Schedule has frequently been discussed by Health Officers and Municipal Authorities. There is a certain relation, especially as regards seasonal prevalence, between it and Puerperal Fever, and on this account, and because of its tendency to spread where insanitary conditions prevail, I have always advocated its retention upon the list of notifiable diseases.

Erysipelas was prevalent during the early part of the year, but the greater number of the cases were of a mild character, so that out of 88 cases reported, only 2 resulted in death. Many of them could not be classed as infectious Erysipelas, and some were little more than an erysipelatous blush in the neighbourhood of an old standing ulcer or sore.

From Croup the deaths of 16 children were registered, a number somewhat below the average of former years.



Consumption—Pulmonary Phthisis—accounted for 151 deaths, of which the greater part were registered as between the ages of 15 and 45 years.

The sickness and mortality from this cause show an undoubted tendency towards diminution, a result which may, in part at least, be attributed to better sanitation in the dwellings and work-places of the operative class. The expediency or otherwise of including Phthisis amongst the list of notifiable diseases has at various times been discussed amongst Medical Officers of Health, and at Sanitary meetings. There can be no doubt that the bacillus given off from the lungs of a consumptive patient may take root and germinate in the system of a person previously free from the disease, but this can only occur where the soil upon which the germs may fall is a suitable one, and one naturally prone to the disease. Herein lies the danger of members of the same family—and therefore presumably having a tendency towards the disease—sleeping with a member who has already developed Pulmonary Phthisis.

A crowded ill-ventilated bedroom, the body worn out with the day's work, and in a condition of sleep, when nature may be said to be off her guard, are the very conditions favourable to the inception of the germs given off in the expectoration of a phthisical subject, and on this account a person suffering from the disease should as far as possible be isolated, and should certainly sleep in a room separate from the rest of the family. It is not a pleasant idea to think that we are constantly exposed to the danger of eating, drinking, and inhaling waste and poisonous matters given off from the exterior and interior of the bodies of those around us. And yet such is the case, though fortunately only a very small percentage of the bacilli survive to work any mischief, and then only when the attendant conditions are favourable to their growth and reproduction.

But in addition to the precaution of keeping the sick apart from the healthy, it should be remembered that fresh air and sunlight are the two great enemies to the Tubercle bacillus, and we should therefore enlist them as far as possible upon our side, not only in order to give the sick person the greatest chance of preserving—or at any rate of lengthening—his life, but also in our own interest, and for the protection of our own health.

Bronchitis showed a somewhat higher ratio of deaths, while the mortality from Inflammation of the Lungs was less than the average of former years. These two diseases may be taken together, since in many cases the cause of death is a combination of the two, acting conjointly.

From Premature Births and diseases incidental to Infantile life, the return as usual is heavy.



In every weekly return a considerable proportion of the total mortality is classified under this heading of Infantile diseases, and the total for the past year amounts to 592. Of these 493 were infants under the age of twelve months, many of them being prematurely born, and so never having had a proper hold of life, whilst of the remainder, many succumbed to inherent weakness, or to diseases inherited from their parents. Since starvation and actual want have practically been unknown during the past year, it must be inferred that many of these Infantile deaths, ascribed to what may be termed developmental diseases, are the result of bad habits, and in a less degree of bad surroundings, on the part of the parents. And since these children, beginning life with a puny frame and possibly a diseased constitution, are subjected, during the short period of their existence, to the same evil conditions, it can readily be understood how so many fail to withstand the first onslaught of illness, and so—never at any time having been healthy—fade away within a very short interval of their birth.

Add to these deaths, those of infants from Measles, Diarrhœa, Bronchitis, &c., and the number for the year rises to 975, or more than 36 per cent. of the total mortality at all ages. But some may outlive the first 12 months, and so if we take the deaths occurring from all causes in children under the age of 5 years it will be found that the mortality amounts to 1,448 or considerably more than one-half of the total deaths registered throughout the year. Or gauging the loss of Infantile life by another standard—the one generally adopted—and which therefore admits of a comparison between Preston and other towns, it will be found that out of every thousand children born during the year, 263 died before attaining the age of 12 months. Heavy as was the mortality amongst young children throughout the Kingdom—177 per 1000—in none of the other 33 large towns was this enormous Infantile death-rate exhibited, although in eight of these towns the figures exceeded 200 in every 1,000 births, Salford being the next highest to ourselves with 220, closely followed by Burnley and Wolverhampton, with 219 and 217 respectively.

The various causes leading to this enormous loss of child life—and I now deal with all the diseases occurring in children under the age of 12 months—have been discussed from year to year, and have been dealt with in various monthly and special Reports. It may seem strange that, since the causes are known, the evil cannot be—or at any rate has not been—cured. Much has been done by Municipal action, but it is with the parents, with those having the nursing and the home management of these little ones, that the fault mainly lies, and it is to them that we must look for a remedy. Or rather it is in those now growing up who will soon themselves be parents, that we must expect to find the fruits of instruction and education. If the teaching now given in our Schools on such subjects as Nursing, Cooking, Hygiene, and Domestic Science generally, does not produce improvement, does not

overcome evil habits and vicious customs, then indeed we are paying dearly, and to no purpose, for our Public Education.

Nothing is so difficult to overcome as an evil habit of long continuance, and yet even this must yield if the pressure brought to bear upon it is only sufficiently steady and determined.

Not so very many years since, every newly born infant was at once invested with the order of the night cap, which useless—and worse than useless—appendage it continued to wear for a certain time, after which its cap was as arbitrarily discontinued, without regard to temperature or season, or to the amount of hair with which nature might in the interval have provided it. At the same time its innocent stomach was outraged with a mixture of butter and sugar, the precursor of many other insults to which it was destined to be subjected. These two customs have now passed away, and it is to be hoped that their departure will be followed by that of others, equally foolish and injurious, which still at the present day survive to the detriment of the infant's health and well being.

The deaths attributed to Old Age were in excess of the number recorded under this heading in previous years, but it does not follow from this that there was an excess of very old people who died during the past year without suffering from any actual disease; since Senility and Natural Decay overtake some men much sooner than others, and so though the great majority exceeded 70 years—45 being over 80—2 deaths were recorded from this cause between the ages of 50 and 60 years.

Violence accounted for 59 deaths of which 9 were due to Suicide, and the remainder to various forms of accident. It is somewhat remarkable the slight variation which, allowing for increase of population, occurs in these deaths from year to year.

The deaths from all causes and at all age periods amounted to 2,687, and these upon a population estimated at 115,103, represented a rate of 23·34 to each thousand persons.

Of the total deaths, 3·2 per cent. were uncertified, a rate very considerably in excess of the average for the large towns, and one which was only equalled in Birmingham, and slightly exceeded in Liverpool. Many of these deaths were those of infants, and with regard to them I have always advised—if not an Inquest—at least an enquiry by some Medical Adviser to the Coroner, who could then say whether or not a more searching investigation was required. Such proceedings would result in the detection of crime, and would certainly help to put a stop to carelessness which is often little less than criminal.

Of the various Wards, St. Peter's showed the heaviest rate, 25·42, Park and



Fishwick were practically equal with rates of 24·05 and 24·07, St. John's came fourth with 23·87, while Christ Church, though not absolutely the lowest, was still much below the average with 18·74, Maudland Ward occupying the best position with a rate of 16·88.

The Births for the year numbered 3,687, and so showed a rate of 32·08 per thousand, while the natural increase—the excess of Births over Deaths—amounted to exactly 1,000 lives. Although 11 of the large towns showed a higher birth-rate than Preston, in the majority it was considerably lower, the rate varying from 22·5 in Halifax to 35·3 in Liverpool.

It must be remembered that as it is now eight years since the census was last taken, and while each year the addition of population has been divided amongst the various Wards as fairly as possible, having regard to their increase, and to the number of new houses built and old ones left empty, still it is in the main a matter of guess work, and a fresh census might very possibly alter the Ward populations, and consequently their respective Birth and Death rates.

As regards the Birth-rate it will be seen that the order is the same as with the mortality, except that in this respect Maudland shows a higher rate than Christ Church Ward. No doubt this relation of Birth and Death rate is to a great extent a matter of cause and effect, since where the Infantile death rate is so heavy, a high Birth Rate must needs be followed by a high rate of mortality.

Having dealt with the vital statistics, I have next to speak of the work done by the Sanitary Department during the year. This as usual is summarised in Table No. 11, which in a great measure speaks for itself. As will be seen from this, there has been a large increase in the number of Ashpails emptied, a natural consequence of the increased number of these receptacles; some having been provided in the first instance for newly erected houses. others having supplanted the old privy-ashpit.

Year by year the advantages of the watercloset and ashpail over the privy and middenstead are becoming better understood, and are consequently growing in favour amongst builders and owners of cottage property. The day has surely gone by when the excrement and refuse of a household can be stored for months in close proximity to the dwelling and its inhabitants.

The number of cases in which conversion to the water-carriage system was compulsorily enforced amounted to 203, a number which would have been increased if larger areas had been dealt with at one time. Many of the cases taken were those in which the conditions were exceptionally bad, although the number of houses concerned was but small.



Again in Nos. 1 and 2 Districts a large amount of the Inspectors' time was taken up in making out and serving Notices to Sewer, Pave, and Flag New Streets and back passages. This is a matter which certainly improves—and often greatly improves—the sanitary condition of a street or district, but it is one which comes rather within the province of the Borough Surveyor than of the Medical Officer of Health. So far the work has been done by the Sanitary Department, but as a consequence there has been less time to devote to other matters.

In those cases in which the substitution of a water closet and pail for the existing privy and ashpit was required, the form of closet was left to the discretion of the owner. In some cases the short hopper and cistern were adopted, in others the waste water closet—that flushed by the refuse water from the slopstone, and by the rain water from the surface of the yard and roof. The advantages of this latter pattern have already been spoken of in former Reports, and where erected in the town they have been found to work in a satisfactory manner. Owners of property, who have alterations of this kind to carry out, may obtain information as to these, and similar points, upon application at the Sanitary Office.

The number of houses fumigated amounts to 587, a number which may seem in excess of the certified cases of Infectious Disease, but this is accounted for by the fact that those houses in which deaths from Measles were registered were subjected to this precautionary measure.

The Public Schools were also disinfected at the time when they were closed, either on account of the holidays, or because of the order issued by the Sanitary Authority.

Table No. 8, which gives a return of work done by the Inspector of Meat, Food and Drugs, &c., shows that 119 Samples of various articles were purchased, and submitted to analysis.

The details of these examinations are set out in Table No. 6, and from this it will be seen that in 18 instances the article proved to be adulterated, or at any rate not of a genuine character. In 6 cases it was judged sufficient that the vendor should receive a cautionary letter; in the others proceedings were taken, and fines, varying in amount from 5s. to 40s. were imposed.

The object sought in analysing the various articles of food, &c., is not so much that of catching and punishing fraudulent vendors, as of ensuring that the Public shall obtain the precise article for which it asks, and for which it is willing to pay.

As regards some forms of adulteration—that for instance of adding chicory to coffee—

little or no harm results to the purchaser, who nevertheless should be told the composition of the article which he is receiving; but in other cases—more especially those of milk—nothing can be said in extenuation of the offence, since the nutrition of a child, or the recovery of an invalid, may be seriously affected.

The meat which upon examination proved to be diseased or otherwise unfit for human food, and which was therefore condemned and destroyed, amounted to 60,099 lbs.

Almost the whole of this large quantity was voluntarily submitted for inspection, and having been pronounced unfit for consumption, was destroyed with the owners' consent. Prosecutions were instituted against two butchers for exposing for sale the carcase of a diseased animal, about which no previous notice had been given, and in each case a conviction was obtained, and a fine of £10 and costs, with the alternative of two months' imprisonment, imposed.

A third case, where the alleged offence was that of exposing for sale in the Public Market the diseased carcase of a pig, was dismissed upon the unsatisfactory ground that the vendor was not himself aware of the animal's condition.

The amount of meat referred to above, and condemned as being unfit for the food of man, may seem large, and in excess of that dealt with in other towns of similar size, but while on the one hand it would tend to show that more meat of this class is brought into Preston than into other towns, it may also be taken as a proof that the supervision is more exact, and that a higher standard of soundness is required. No harm can result if all doubtful carcasses are, without exception, submitted to official inspection, since it is then only through an error on the part of the Inspector or myself that they can find their way into the Market, or on to the shops. But while I would encourage the butchers voluntarily to submit for examination any carcase which was not absolutely above suspicion, it would at the same time be with the hope that the Magistrates would severely punish anyone found illicitly dealing in unsound meat, or in whose possession there might at any time be found a diseased animal, concerning which proper notice had not been given.

The long standing question, as regards a Public Abattoir and private Slaughter-houses, at length shows signs of coming to a conclusion. This will be upon the lines referred to in my last Annual Report, and though, as I then said, the reform will not be as thorough and as satisfactory as I at one time hoped, it will yet result in a decided sanitary improvement. Instead of over 70 Slaughter-houses, scattered over all parts of the town, bad in construction, and worse in situation, the number will be reduced to under 20, and these will be greatly improved as regards their internal arrangements. Not only will the



inspection of meat be rendered easier, but the very suppression of a large number of Slaughter-houses will abate an equal number of nuisances, which at the present time, and under present circumstances, are injuriously affecting the health of persons living in their immediate neighbourhood. Because a Public Abattoir does good not only directly by its influence upon the bad meat trade, but also indirectly since its erection must be followed by the abolition of places never intended for use as Slaughter-houses, and which can only be so used with detriment to the Public Health.

Amongst the other routine sanitary work of the year, I would refer to the Common Lodging Houses which have been regularly inspected, not only with a view to obtaining the earliest information of any Infectious disease, but also in order to keep them up to the best possible standard of efficiency. Advantage has been taken of any change of ownership or tenancy to diminish the number of lodgers, and so increase the available air space per head, while attention has at the same time been directed to the internal arrangements and sanitary accommodation.

There are now in the town three large Model Lodging Houses, of which one is of recent construction, while the other two are old buildings which have however been completely altered, and so adapted to their present purpose.

These are much more satisfactory than the old type of Lodging houses—the majority of which are nothing more than cottage houses—and admit of better supervision both by day and night.

The Canal Boats have received careful attention throughout the year, and the usual Report concerning them has already been forwarded to the Local Government Board. The trade upon this portion of the Canal is not increasing, and the number of boats upon the Register now stands at 35, one new Boat having been added during the past year. So far as Infectious disease is concerned, the health of the occupants has been most satisfactory, no case of any kind having come under observation. The condition of the Boats, as regards cleanliness &c. has been well maintained, and the Inspector has not had occasion to take proceedings on account of any infringement of the Canal Boats Acts or Regulations.

Dealing with that very important matter, the water supply of the town, I regret that as yet I cannot report the completion of the Alston Reservoir, although the work is being pushed forward as rapidly as possible. During the whole of the year there was however an abundant supply for all domestic purposes, while repeated chemical analysis showed that it was most satisfactory in quality. This is only what might be expected considering its freedom from possible sources of contamination either at the gathering ground, or during its storage and subsequent delivery in the town. During the time when



Typhoid Fever was somewhat prevalent, it was considered advisable—as a matter of precaution—to supplement the chemical analysis by one of a bacteriological character. An examination for the specific germ of Typhoid Fever—the *Bacillus Typhi-abdominalis*—showed its entire absence.

An increased number of Smoke Observations have been recorded, but in only one instance were proceedings taken to enforce the abatement of the nuisance. After repeated adjournments the case was withdrawn in consequence of the marked improvement effected, but on the understanding that a recurrence of the evil would be followed by a renewal of the prosecution.

I have made reference to the Flagging and Paving Notices served in Nos. 1 and 2 Districts. These chiefly referred to streets running to the south of New Hall Lane, and to the various roads extending off St. Stephen's Road, in the neighbourhood of Moor Park.

These Private Improvements, carried out at a cost of over £10,000, have greatly enhanced the appearance of these localities, besides putting them into a much more sanitary condition.

The construction of a main sewer at Ribbleson has not only provided for houses which no doubt before long will be built in this direction, but has also given an outfall for those already erected, and so has done away with a nuisance which periodically returned whenever there was a heavy rainfall. A new sewer of larger capacity has also been provided for Grafton Street, in place of the former one, which, besides being too small in calibre, was in a defective condition, and frequently became obstructed, to the detriment of the houses discharging into it.

In September, in accordance with your instructions, I had the privilege of attending the Annual Congress of the Sanitary Institute, which that year was held at Leeds. There is always a good deal to be learnt at such meetings from the interchange of ideas with those who have made sanitation a special study, either as Engineers, Chemists, Health Officers, Statisticians or the like.

Amongst many interesting papers, followed by the usual discussions, were several dealing with the treatment of sewage by what is variously termed the natural, bacterial, or septic method.

Many of you are acquainted with the principles of this method as carried out during the last year or two at Exeter, but evidently much has yet to be learnt as regards its actual working and practical value.

The battle of the disinfectants was also again waged, and though each had its own advocate, there still remains ample room for one which can be proved to be at once cheap, efficient, pleasant, safe, and easy to use.

Although as I said at the commencement of this Report, I have had during the past year to deal with an increased rate of mortality, this has been due to exceptional causes; while the small amount of sickness which so far has occurred during the present year leads one to predict that whatever may be the case with other "rates" that of mortality will be diminished during 1898.

H. O. PILKINGTON,

May 9th, 1898.

MEDICAL OFFICER OF HEALTH.

#### PORT SANITARY AUTHORITY.

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As usual, and in accordance with the requirements of the Local Government Board, I submit the following short Report dealing with the Sanitary condition of the Port of Preston during the past year. With the development of the River, and the increased facilities given to the Vessels entering the Dock, I have nothing to do or say, further than that as the advantages offered become greater, so the amount of Shipping increases, and the work of inspection becomes in proportion heavier. As shown by the return—Table No. 12—the actual number of Vessels examined was 813, of which the Steamers were in the proportion of about three to each Sailing Vessel.

Of this number 127 were found to be more or less defective, the nature of the various defects being set forth in the Table referred to.

Most of the faulty conditions were found in the Forecastle, and while many were due to neglect on the part of the occupants themselves, others were structural, or of a nature dependent upon the owners of the Vessel. It is satisfactory to find that in every instance attention was at once given to the Inspector's Report, so that if the work was not actually completed at the time of the Vessel's sailing, it was so far in hand that it was not considered necessary to forward any notice to the Authority of the Port for which she might be bound. Defects connected with the lighting, ventilation, and cleanliness of the Forecastle and

provision locker are subjects affecting the health of the crew, who are themselves often careless and indifferent about such matters, while the condition of the water casks and latrines affects the health of all on board the Vessel. So that if some of the defects appear trivial, they all have a bearing upon sanitation, and each one remedied represents a danger avoided.

No Infectious sickness was present on any Vessel entering the Dock, nor did any occur amongst the crews during their stay in this Port. Such cases of illness as were met with were watched, but proved to be of a trivial and temporary character. There was therefore no call upon the resources of the Cholera Hospital, which has recently been repainted, and is in a perfectly effective condition should its services unfortunately be required.

In the beginning of March, Dr. Reece held an enquiry on behalf of the Local Government Board, as to certain proposed alterations in the boundaries of the Port. Although opposed by Southport, this resulted in the Bog Hole being included within the limits of this Port, and therefore within the District over which you hold jurisdiction as the Sanitary Authority.

Dr. Reece afterwards visited the Dock, the Hospital, and some of the Vessels which at the time were discharging cargo.

H. O. PILKINGTON,

Medical Officer of Health,

Port Sanitary District.

May 9th, 1898.



TABLE No. 1.

Number and Causes of Deaths at different Ages, for the Year ending December 31st, 1897.

Cause of Death.	Under 1 Year.	1 to 2	2 to 5	5 to 10	10 to 15	15 to 25	25 to 40	40 to 50	50 to 60	60 to 70	70 to 80	80 to 90	90 to 100	Total.	Year 1896	Year 1895	Year 1894	Average for 6 years
Small Pox .....	...	...	...	...	...	...	...	...	...	..	...	..	...	...	...	...	1	·13
Fever .. .....	...	2	2	3	2	10	7	5	3	1	..	...	...	35	23	22	29	31·84
Scarlatina, &c. ....	2	...	3	...	...	...	...	...	...	...	...	...	...	5	3	4	9	19·66
Measles .....	85	120	68	9	...	...	.	...	...	...	...	...	...	282	3	46	35	90·5
Diarrhœa .....	234	34	7	1	...	...	2	1	3	7	4	1	...	294	135	284	143	239·37
Whooping Cough .....	15	9	5	1	...	..	...	...	...	...	...	...	...	30	39	46	41	46·5
Diphtheria .....	...	..	...	4	...	...	...	...	...	...	...	...	...	4	11	4	8	8·0
Croup .....	2	8	4	2	...	...	...	...	...	...	...	...	...	16	18	19	7	12·5
Consumption .....	2	...	1	2	2	30	58	34	19	3	...	...	...	151	149	162	166	165·5
Bronchitis .....	94	31	17	2	1	2	5	9	38	55	31	8	...	293	268	289	238	275·0
Inflammation of Lungs .. ...	40	25	17	2	2	11	11	16	15	10	3	3	...	155	177	168	166	177·0
Teething, Convulsions Pre- mature Births & Debility }	493	64	29	6	...	...	...	...	...	...	...	...	...	592	568	631	522	583·5
Old Age .....	...	...	...	...	...	..	...	...	2	5	52	41	4	104	82	90	75	81·83
Violence, &c.....	4	3	10	3	1	6	13	4	7	4	2	2	...	59	51	62	56	53·67
Other Diseases .....	4	2	12	12	16	37	105	98	140	139	87	15	...	667	664	701	690	686·0
Total .....	975	298	175	47	24	96	201	167	227	224	179	70	4	2687	2191	2528	2186	2471·0

TABLE No. 2.

Number and Causes of Deaths in each Month of the Year ending December 31st, 1897.

Cause of Death.	January	February	March	April	May	June	July	August	September	October	November	December.	Total.
Small Pox .....	...	...	...	...	...	...	...	...	...	...	...	...	...
Fever.....	3	1	4	1	2	...	2	2	3	9	5	3	35
Scarlatina, &c. ....	1	1	...	...	...	...	1	...	...	1	...	1	5
Measles .....	...	...	2	2	1	18	99	120	32	8	...	...	282
Diarrhœa .....	3	2	3	1	2	4	17	110	116	32	3	1	294
Whooping-Cough.....	5	1	5	6	4	2	2	1	1	3	...	...	30
Diphtheria .....	...	...	...	...	...	1	...	1	1	...	1	...	4
Croup .....	1	5	1	...	5	...	...	...	...	1	1	2	16
Consumption .....	12	8	14	17	13	8	20	12	9	13	9	16	151
Bronchitis.....	32	37	21	23	28	14	15	15	6	16	26	60	293
Inflammation of Lungs ...	28	9	16	14	7	13	7	11	8	10	15	17	155
Teething, Convulsions, &c.	42	38	44	40	50	42	51	57	42	60	57	69	592
Old Age .....	10	10	10	8	13	8	8	1	10	9	8	9	104
Violence, &c.....	8	4	2	3	5	9	2	8	6	1	4	7	59
Other Diseases.....	79	66	53	50	69	44	58	54	32	59	42	61	667
Total .....	224	182	175	165	199	163	282	392	266	222	171	246	2687

TABLE No. 3.

Number and Causes of Deaths in each Ward for the Year ending December 31st, 1897.

Wards.	Small Pox.	Fever.	Scarlatina, &c.	Measles.	Diarrhoea and Dysentery.	Whooping Cough.	Diphtheria.	Croup.	Consumption.	Bronchitis.	Inflammation of Lungs.	Teething, Convulsions, Pre-mature Births, & Debility	Old Age.	Violence, &c.	Other Diseases.	Total Deaths.	Rate per 1000 per annum.	Total Births.	Rate per 1000 per annum.	Population.
St. Peter's Ward	...	4	...	81	71	3	...	1	33	46	37	135	19	4	121	555	25·42	792	36·28	21831
Park Ward .....	...	8	1	44	71	5	...	4	42	77	42	161	35	9	172	671	24·05	934	33·47	27898
Fishwick Ward .	...	6	2	73	75	7	3	1	29	69	24	129	12	11	134	575	24·07	798	33·40	23886
St. John's Ward...	...	5	1	32	32	5	1	5	19	43	13	63	8	3	93	323	23·87	434	32·08	13526
Christ Church Wd.	...	2	...	14	24	7	...	2	12	27	23	49	17	7	67	251	18·74	331	24·72	13389
Maudland Ward...	...	6	1	38	21	3	...	3	14	27	11	51	11	5	55	246	16·88	392	26·89	14573
Gaol, Infirmary, &c.	...	4	...	...	..	...	...	...	2	4	5	4	2	20	25	66	...	6	...	...
Total.....	...	35	5	282	294	30	4	16	151	293	155	592	104	59	667	2687	23·34	3687	32·03	115103

Death Rate per annum per 1,000 of Population for the Year .....23·34

Average Death Rate per annum per 1,000 of Population for the past six years 22·05

Do. Do. for 10 years .....23·57

Death Rate per annum, per 1,000 of Population, of Children under one year... 8·47

Per centage of Deaths under one year to total Deaths for the Year.....36·28

Do. Do. for 10 years.....34·51



TABLE No. 4.

Number of Deaths in each Ward during each Month of 1897,

WARDS.	January.	February	March	April	May	June	July	August	September	October	November	December	Total.
St. Peter's Ward .....	41	26	32	25	37	32	84	80	56	58	32	52	555
Park Ward .....	57	52	51	38	56	53	72	82	61	50	41	58	671
Fishwick Ward .....	51	40	28	37	41	31	36	114	84	35	39	39	575
St. John's Ward .....	31	21	23	21	29	12	20	48	29	29	23	37	323
Christ Church Ward .....	21	21	17	22	16	17	29	26	17	25	14	26	251
Maudland Ward .....	18	18	20	15	13	15	33	35	15	17	16	31	246
Gaol, Infirmary, &c.....	5	4	4	7	7	3	8	7	4	8	6	3	66
Total .....	224	182	175	165	199	163	282	392	266	222	171	246	2687

TABLE No. 5.

Per Centage of Deaths from Zymotic Diseases to Sickness reported during the Year ending December 31st, 1897.

Disease.	Number of Cases Reported.	No. of Deaths.	Per Centage.
Small Pox .....	...	...	...
Typhoid Fever .....	202	35	17.32
Scarlet Fever .....	56	5	8.92
Diphtheria .....	24	4	16.66

TABLE No. 6.

Substances submitted for Analysis during the year 1897.

Nature of Article.	No. of Samples	Result.
New Milk .....	39	Genuine
Coffee .....	12	Do.
Butter .....	27	Do.
Lard .....	7	Do.
Whisky .....	6	Do.
Glycerine .....	1	Do.
Olive Oil .....	2	Do.
Tincture of Rhubarb...	4	Do.
Bread .....	1	Do.
Mustard.....	1	Do.
Ground Ginger.....	1	Do.
Margarine .....	1	Not labeled according to Act; cautioned by Town Clerk; 11.53 total solids
Milk .....	1	Cautioned by Town Clerk
Milk .....	1	Deficient in cream, and may contain separated milk
Coffee .....	1	60 per cent. of chicory; Fined 20/- and Costs or 14 Days
Coffee .....	1	15 per cent. of chicory; Cautioned by Town Clerk
Coffee .....	1	70 per cent. of chicory; Fined 20/- and Costs or 14 Days
Coffee .....	1	40 per cent. of chicory; Cautioned by Town Clerk
Coffee .....	1	40 per cent. of chicory; Fined 5/- and Costs or 7 Days
Coffee .....	1	30 per cent. of chicory; Fined 2/6 and Costs or 7 Days
Coffee .....	1	40 per cent. of chicory; Fined 10/- and Costs or 14 Days
Coffee .....	1	50 per cent. of chicory; Fined 10/- and Costs or 14 Days
Tincture of Rhubarb...	1	Passable
Butter .....	1	68 parts fat other than Butter; Fined £2 & Costs or One Month
Butter .....	1	70 parts fat other than Butter; left the town, cannot be found
Butter .....	1	80 parts fat other than Butter; Fined 30/- and Costs or 14 Days
Butter .....	1	82 per cent. of fats other than Butter; Cautioned by Town Clerk
Butter .....	1	85 per cent. of fats other than Butter; Fined 30/- and Costs or 14 Days
Butter .....	1	Contains from 20 to 25 per cent of Butter; Cautioned by Town Clerk
	119	Samples
	1	Private Sample



TABLE No. 7.

## Contagious Diseases (Animals) Act, 1878.

Name of Disease.	Situation of Premises.	Date of Outbreak	Number of Diseased Animals	Number of Healthy Animals in contact with Disease	Slaughtered by Order	Date when Premises were declared free from Disease	Number of Visits
Swine Fever	"The Chestnut," Ribbleton	May 27th, 1897	Twelve	None	Twelve	June 30th, 1897	Four
Swine Fever	Little George, Factory Yard	July 30th, 1897	Eighteen	None	Eighteen	Aug. 31st, 1897	Six

TABLE No. 8.

## Return of Work done by Inspector of Food and Drugs, &amp;c., for Year, 1897.

Food and Drugs, Samples purchased	.....	.....	119
Cow-sheds and Dairies Visited	.....	.....	705
Slaughter-houses Visited	.....	.....	7080
Meat Seized and Destroyed.....	.....	.....	318 lbs.
Meat Condemned and Destroyed	.. ...	.....	59781 lbs.
Fish Do.	.....	.....	21988 „
Fruit Do.	.....	.....	1100 „

TABLE No. 9.

Birth Rate, and Analysis of the Zymotic Death Rate in 83 of the largest English Towns for the year ending December 31st, 1897. Compiled from the Registrar-General's Returns.

Name of Town.	Population	Birth Rate.	Death Rate.	ZYMOTIC DEATH RATE.								Deaths under one year to 1,000 Births.
				Small Pox	Meas-les	Scarlet Fever	Diph-theria	Whoop-ing Cough	Fever	Diarr-hœa	Total	
London .....	4,463,169	30·0	18·1	0·00	0·43	0·17	0·50	0·41	0·13	0·92	2·59	158
West Ham .....	273,682	32·1	15·6	0·00	0·51	0·11	0·37	0·36	0·17	1·08	2·62	171
Croydon .....	121,171	24·9	13·0	0·00	0·14	0·10	0·06	0·25	0·07	0·79	1·43	134
Brighton .....	121,401	24·6	15·0	0·00	0·14	0·10	0·09	0·20	0·18	0·91	1·64	142
Portsmouth ...	182,585	26·8	16·1	0·00	0·19	0·06	0·15	0·35	0·23	1·54	2·54	168
Plymouth.....	97,658	28·4	19·0	0·00	0·50	0·05	0·13	0·54	0·08	0·87	2·18	183
Bristol .....	232,242	27·7	17·2	0·00	0·24	0·07	0·15	0·50	0·20	0·65	1·83	148
Cardiff .....	170,063	31·1	14·9	0·00	0·44	0·10	0·53	0·20	0·12	0·79	2·19	150
Swansea .....	100,309	29·3	15·8	0·00	0·45	0·10	0·11	0·42	0·07	0·21	1·36	139
Wolverhampton	87,287	35·0	22·0	0·00	0·53	0·24	0·62	0·44	0·27	2·11	4·22	217
Birmingham ...	505,772	33·3	21·5	0·00	0·79	0·18	0·29	0·44	0·18	1·99	3·88	214
Norwich .....	110,154	30·5	18·7	0·00	0·02	0·10	0·09	0·43	0·29	1·27	2·22	196
Leicester .....	203,599	30·5	17·6	0·00	0·07	0·33	0·36	0·40	0·19	1·76	3·14	205
Nottingham.....	232,934	28·9	18·7	0·00	0·20	0·15	0·09	0·48	0·21	1·65	2·81	205
Derby .....	103,291	27·0	16·0	0·00	0·16	0·09	0·09	0·21	0·25	1·09	1·91	167
Birkenhead .....	111,249	31·6	18·2	0·00	0·49	0·20	0·23	0·28	0·24	0·98	2·45	162
Liverpool .....	633,078	35·3	24·3	0·00	0·53	0·32	0·19	0·55	0·26	1·93	3·81	200
Bolton .....	121,433	32·5	21·9	0·00	1·77	0·18	0·05	0·34	0·20	1·45	4·00	186
Manchester .....	534,299	33·2	23·1	0·00	1·18	0·23	0·08	0·56	0·18	1·56	3·81	194
Salford.....	213,190	35·0	23·9	0·00	2·22	0·28	0·15	0·52	0·31	2·00	5·50	220
Oldham .....	145,845	26·0	19·2	0·00	0·67	0·13	0·07	0·53	0·14	1·65	2·60	183
Burnley .....	106,122	29·7	19·5	0·00	1·33	0·04	0·56	0·59	0·18	1·24	3·97	219
Blackburn .....	131,330	27·7	19·5	0·00	1·11	0·05	0·06	0·62	0·29	1·31	3·45	207
Preston .....	115,103	31·8	24·3	0·00	2·76	0·04	0·03	0·26	0·30	2·23	5·63	263
Huddersfield ...	101,454	23·4	16·4	0·00	0·26	0·31	0·20	0·20	0·15	0·34	1·49	130
Halifax .....	95,747	22·5	16·4	0·00	0·59	0·22	0·09	0·09	0·16	0·32	1·39	139
Bradford .....	231,260	24·6	17·4	0·00	0·34	0·04	0·06	0·19	0·13	1·43	2·21	178
Leeds .....	409,472	31·6	19·8	0·00	0·39	0·23	0·16	0·23	0·19	1·56	2·79	191
Sheffield .....	351,848	34·4	21·2	0·00	0·55	0·25	0·12	0·40	0·31	1·82	3·48	197
Hull .....	225,045	33·3	18·5	0·00	0·10	0·27	0·14	0·24	0·25	2·23	3·26	178
Sunderland .....	142,107	34·6	19·7	0·00	0·44	0·07	0·03	0·54	0·26	1·20	2·56	163
Gateshead .....	101,070	35·8	18·2	0·00	0·49	0·17	0·08	0·31	0·20	1·07	2·32	173
Newcastle .....	217,555	31·3	19·1	0·00	0·43	0·09	0·11	0·28	0·15	1·00	2·08	177



TABLE No. 11.

Summary of Work done during the Year ending December 31st, 1897.

	No. 1 District	No. 2 District	No. 3 District	No. 4 District	TOTAL.
Number of Ashpails emptied .....	...	...	...	...	740,052
„ Ashpits emptied .....	...	...	...	...	14,455
„ Complaints received .....	472	414	309	735	1,930
Inspection of Dwelling Houses .....	3107	3977	3845	2980	13,909
„ Cellars .....	222	701	179	422	1,524
„ Schools .....	101	31	29	115	276
„ Lodging Houses .....	646	452	...	69	1,167
„ Slaughter Houses .....	91	389	278	108	866
„ Canal Boats .....	...	143	...	...	143
„ Dairies and Milkshops .....	...	191	54	11	256
„ Mills and Workshops ...	252	458	249	119	1,078
„ Bakehouses .....	137	306	196	105	744
„ Markets .....	...	240	79	100	419
„ Ashpits and Yards .....	4414	4060	4102	3887	16,463
„ Drains .....	4653	4361	4367	3659	17,040
„ Infected Houses ...	225	98	157	112	592
Circular letters sent .....	31	32	18	30	111
Notices served for Slopstone Pipes .....	9	9	5	17	40
„ Defective Drains ...	319	264	298	175	1,056
„ „ Spouts .....	29	69	30	29	157
„ „ Water Closets .....	58	124	76	92	350
„ „ Privies and Ashpits .....	65	79	57	64	265
„ Privies converted into W.C's. ...	50	80	58	45	233
„ Cellargrate Dangerous .....	14	17	...	5	36
„ Overcrowding .....	...	1	2	1	4
„ Limewashing .....	14	37	74	32	157
„ Yard Pavement ...	67	30	69	76	242
„ Manure Accumulations ...	1	4	8	11	24
„ Stagnant Water ...	7	32	3	27	69
„ General Nuisances .....	10	11	9	37	67
„ Sewer, Level, and Pave .....	579	420	...	...	999
„ Houses Unfit for Habitation .....	8	...	...	7	15
Smoke Observations .....	22	31	16	12	81
„ Nuisance—Notices Served .....	...	1	...	...	1
Schools Fumigated .....	8	11	7	7	33
Houses „ .....	209	122	161	95	587
Bedding Disinfected .....	38	22	13	31	104
Drains Tested .....	10	47	5	19	81
Re-Inspections .....	647	1423	627	2030	4727

TABLE No. 10.

Meteorological Observations for the Year ending December 31st, 1897.

Month.	Attached Thermometer.	Barometer.	Barometer corrected to 32deg. Fahr.	Hygrometer.		Temperature in Shade.		Earth Thermometer.		Mean Daily Temperature.	Humidity Saturation=100	Temperature of Town's Water.	Rainfall in inches.	Wind velocity in miles.	Number of Deaths from	
				Dry Bulb.	Wet Bulb.	Maxi- mum.	Mini- mum.	One Foot	Four Feet.						Bronchitis.	Diarrhoea.
January .....	36.32	29.714	29.878	36.82	36.76	40.10	32.67	37.46	43.25	37.17	89	39.2	0.94	3557.1	32	3
February.....	40.78	29.878	29.991	42.39	40.57	44.78	38.11	41.21	46.21	41.51	92	39.3	2.85	3356.0	37	2
March .....	43.23	29.603	29.714	44.19	42.71	48.54	43.23	42.91	43.82	44.20	89	42.3	3.37	5666.9	21	3
April .....	45.78	29.782	29.880	47.25	44.14	50.71	38.39	43.25	44.46	45.18	81	38.9	2.70	3800.6	23	1
May .....	52.42	29.901	29.978	53.96	49.93	58.53	43.21	47.11	46.78	52.14	73	38.3	1.55	4240.1	28	2
June .....	59.28	29.923	29.975	60.11	55.39	66.14	50.74	54.68	52.51	58.99	75	45.3	5.54	4644.2	14	4
July .....	63.96	29.937	29.981	64.43	59.21	70.49	54.06	57.89	55.57	63.35	71	51.1	1.59	3532.4	15	17
August .....	64.03	29.687	29.729	64.49	59.92	68.96	55.64	59.35	58.28	62.99	75	50.2	4.20	3142.0	15	110
September ...	55.31	29.854	29.921	56.19	52.68	60.37	49.43	53.94	55.11	55.32	79	54.6	3.58	4443.7	6	116
October .....	51.03	29.959	30.041	52.82	49.60	57.78	45.17	50.28	52.14	51.92	79	49.4	2.00	3271.7	16	32
November ...	48.43	30.073	30.163	49.46	47.68	53.60	43.07	47.78	50.67	48.68	87	41.9	1.49	2683.5	26	3
December ...	40.82	29.831	29.972	41.11	40.05	45.48	37.85	40.77	46.60	41.53	92	36.7	5.72	5087.6	60	1



TABLE No. 12.

## Return of Port Sanitary Work for the Year ending December 31st, 1897.

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Steamships Inspected	.....	.....	.....	.....	632
Sailing Vessels Inspected	.....	.....	.....	.....	181
Re-Inspections	.....	.....	.....	.....	254
Condition of Vessels examined	{	Good	.....	.....	686
		Defective	.....	.....	127

*Defective conditions remedied :*

Paints stored in Forecastle .. ...	.....	.....	.....	4
Forecastle Deck Leaking	.....	.. ...	.....	12
Do. Dirty	.....	.....	.....	55
Do. Required Painting .. ...	.....	.....	.....	41
Do. Ventilation and Light Defective		.....	.....	16
Do. Lamp Defective	.....	.....	.....	2
Forecastle (on Deck) not provided with Scuppers	.....	.....	.....	2
Defective Privies and Water Closets ...	.....	.....	.....	27
Do. Water Casks replaced with Iron Tank	.....	.....	.....	1
Water Casks and Tanks Dirty	.....	.....	.. ...	26
Provision Lockers not ventilated	.....	.....	.....	21
Foul Bilges	.....	.....	... ..	17
„ Peaks	.....	.....	.. ...	3
„ Chain Lockers under Forecastle	.....	.....	.....	9

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TABLE No. 13.

The estimated Population, Number of Births and Deaths, Rates per thousand, and natural increase in the Borough, for each year since 1841.

Years.	Estimated Population	No of Deaths.	Death Rate per 1000.	No. of Births.	Birth Rate per 1000.	Natural Increase
1841	51 000	1508	29.57	1974	38.70	466
1842	52 840	1550	29.33	1944	36.79	394
1843	54,680	1459	26.38	1975	36.12	516
1844	56,520	1380	24.42	2200	38.92	820
1845	58,360	1635	28.01	2293	39.29	558
1846	60,200	2189	36.36	2475	41.09	286
1847	62,050	2059	33.18	2268	36.59	209
1848	63 900	1550	24.26	2223	34.79	673
1849	65,750	1751	26.63	2403	36.55	652
1850	67,000	1745	25.81	2649	39.19	904
1851	69,450	2241	32.26	2803	40.36	562
1852	70,850	2284	32.23	2998	42.31	714
1853	72,250	2346	32.47	3072	42.51	726
1854	73,600	2013	27.35	3037	41.26	1024
1855	75,000	2557	34.10	3071	40.95	514
1856	76,400	2251	29.46	3151	41.24	900
1857	77,800	2131	27.39	3286	42.24	1155
1858	79,200	2545	32.13	3082	38.91	537
1859	80,600	2111	26.19	3399	42.17	1288
1860	82 000	2236	27.27	3381	41.23	1145
1861	82,985	2585	31.15	3626	43.69	1041
1862	83,231	2411	28.97	3522	42.32	1111
1863	83,477	2142	25.66	3388	40.57	1246
1864	83,686	2432	29.06	3422	40.89	990
1865	83,932	2708	32.26	3338	39.77	630
1866	84,178	2854	33.90	3535	41.99	681
1867	84,424	2608	30.89	3732	44.20	1124
1868	84,670	2798	33.04	3710	43.82	912
1869	84,916	2248	26.47	3434	40.44	1186
1870	85,162	2406	28.25	3486	40.93	1080
1871	85,427	2541	29.75	3438	40.24	897
1872	85,654	2294	26.78	3704	43.24	1410
1873	86,000	2899	33.71	3558	41.37	659
1874	86,000	2962	34.44	3582	41.65	620
1875	86,000	2581	30.01	3499	40.68	918
1876	86,600	2331	26.92	3623	41.84	1292
1877	87,000	2336	26.85	3601	41.39	1265
1878	87,300	2502	28.66	3697	42.35	1195
1879	87,600	2395	27.34	3403	38.83	1068
1880	88,000	2425	27.35	3475	39.49	1050
1881	96,524	2044	21.17	3489	36.14	1445
1882	97,656	2511	25.71	3785	38.76	1214
1883	98,564	2345	23.79	3576	36.28	1231
1884	99 431	2540	25.53	3745	37.64	1205
1885	100,406	2563	25.52	3868	38.52	1305
1886	101,340	2769	27.32	3961	39.08	1192
1887	102,283	2703	26.42	3870	37.83	1167
1888	103,234	2326	22.53	3823	37.03	1497
1889	104,194	3019	28.97	3912	37.63	902
1890	105,163	2726	25.92	3718	35.35	992
1891	107,864	2807	26.02	3830	35.50	1023
1892	109,038	2481	22.75	3686	33.80	1205
1893	110,225	2753	24.97	3809	34.55	1056
1894	111,425	2186	19.61	3545	31.81	1359
1895	112,638	2528	22.44	3702	32.95	1174
1896	113,864	2191	19.24	3673	32.25	1482
1897	115,103	2687	23.34	3687	32.03	1000





TABLE No. 14.

TABLE OF DEATHS during the year 1897, in the Urban Sanitary District of Preston.

Classified according to DISEASES, AGES, and LOCALITIES.

Names of Localities adopted for the purpose of these Statistics; public institutions being shown as separate Localities.  (Columns for Population and Births are in Table B.)  (a)	MORTALITY FROM ALL CAUSES AT SUBJOINED AGES.								MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS OF CHILDREN UNDER FIVE YEARS OF AGE.																					
	At all Ages	Under 1 year.	1 and under 5.	5 and under 15	15 and under 25.	25 and under 65.	65 and upwards.		Small Pox.	Scarlatina.	Diphtheria.	Membranous Group.	FEVER.						Measles.	Whooping Cough.	Diarrhoea & Dysentery.	Rheumatic Fever.	Phthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.	Influenza.	Injuries.	All other Diseases.	TOTAL.	
													Typhus.	Enteric or Typhoid.	Continued	Relapsing	Puerperal	Cholera												Erysipelas.
(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
St. Peter's Ward.....	546	218	107	11	25	124	61	Under 5 5 upwards	...	...	...	1	...	...	...	...	...	...	78	3	64	...	3	43	2	..	3	128	325	
									...	...	...	...	...	4	...	...	2	...	3	...	6	2	33	40	28	...	1	102	221	
Park Ward .....	647	241	106	15	20	172	93	Under 5 5 upwards	...	1	...	4	...	1	...	...	...	..	43	5	72	1	1	56	...	...	6	157	347	
									..	...	...	...	...	6	...	...	...	1	1	...	3	4	43	60	39	...	2	141	300	
Fishwick Ward .....	568	218	121	16	19	142	52	Under 5 5 upwards	...	2	...	1	...	...	...	...	..	72	6	71	...	1	56	1	...	3	126	339		
									...	..	3	...	...	6	...	...	3	..	2	...	3	1	27	35	41	...	8	100	229	
St. John's Ward .....	316	100	51	10	9	95	51	Under 5 5 upwards	...	1	...	4	...	...	...	...	...	30	6	33	...	...	16	...	...	2	59	151		
									...	...	1	1	...	5	...	...	1	...	1	...	2	...	20	39	18	...	2	75	165	
Christ Church Ward ..	247	84	31	4	7	69	52	Under 5 5 upwards	...	...	..	2	..	...	...	...	...	13	6	21	...	...	22	...	...	1	50	115		
									...	...	...	...	...	2	..	...	...	...	1	4	1	11	27	13	...	8	65	132		
Maudland Ward .....	246	88	52	8	7	57	34	Under 5 5 upwards	...	1	...	2	...	3	...	...	..	1	37	3	18	...	2	25	...	...	2	46	140	
									..	...	...	...	...	3	...	2	...	1	1	...	3	...	13	19	21	...	4	40	106	
Infirmery, Gaol, &c. ...	63	5	2	4	8	36	8	Under 5 5 upwards	...	...	...	...	...	..	...	...	...	..	...	...	...	...	3	...	...	2	2	7		
									...	...	...	...	...	4	...	..	...	...	...	...	..	2	5	6	...	20	19	56		
Total .....	2633	954	470	68	95	695	351	Under 5 5 upwards	...	5	...	14	...	4	...	...	...	1	273	29	279	1	7	221	3	...	19	568	1424	
									...	...	4	1	...	30	...	...	8	1	8	1	21	8	149	225	166	...	45	542	1209	

The subjoined numbers have also to be taken into account in judging of the above records of mortality.

[illegible]



TABLE 15.

## TABLE OF POPULATION, BIRTHS, AND OF NEW CASES OF INFECTIOUS SICKNESS.

Names of Localities adopted for the purpose of these Statistics; public institutions being shown as separate localities.  (Columns for Population and Births are in Table B)  (a)	POPULATION AT ALL AGES.		Registered Births.  (d)	Aged under 5 or over 5.  (e)	NEW CASES OF SICKNESS IN EACH LOCALITY COMING TO THE KNOWLEDGE OF THE MEDICAL OFFICER OF HEALTH.												Enteric or Typhoid removed to Hospital
	Census, 1891.  (b)	Estimated to middle of 1897.  (c)			Small Pox.  1	Scarlatina.  2	Diphtheria.  3	Membranous Group.  4	FEVERS.					Cholera.  10	Erysipelas  11		
									Typhus.  5	Enteric or Typhoid  6	Continued  7	Relapsing  8	Puerperal  9				
St. Peter's Ward.....	20,145	21,831	792	Under 5 5 upwards	... ...	5 4	1 3	... ...	... ...	4 38	... ...	... ...	... 3	... ...	1 14	... 4	
Park Ward .....	27,892	27,898	934	Under 5 5 upwards	... ...	8 4	... 4	... ...	... ...	7 30	... ...	... ...	... 2	... ...	3 24	... 6	
Fishwick Ward .....	19,782	23,886	798	Under 5 5 upwards	... ...	10 7	1 4	... ...	... ...	3 52	... ...	... ...	... 3	... ...	2 22	... 2	
St. John's Ward .....	13,582	13,526	434	Under 5 5 upwards	... ...	1 3	... 2	... ...	... ...	3 19	... ...	... ...	... 1	... ...	... 11	1 4	
Christ Church Ward ...	13,510	13,389	331	Under 5 5 upwards	... ..	2 7	2 3	... ...	... ...	... 14	... ...	... ...	... ...	... ...	... 2	... 5	
Maudland Ward .....	12,953	14,573	392	Under 5 5 upwards	... ...	1 4	... 4	... ..	... ...	2 29	... ...	... ...	... 3	... ...	... 9	... 7	
Infirmery, Gaol, &c. ...	..	...	6	Under 5 5 upwards	... ...	... ...	... ...	... ...	... 1	... ...	... ...	... ...	... ...	... ...	... ...	... ...	
Total ... ..	107,864	115,103	3687	Under 5 5 upwards	... ...	27 29	4 20	... ...	... 1	19 182	... ...	... ...	... 12	... ...	6 82	1 28	



Portions Coloured Red indicate  
Property reported upon and im-  
proved during the year 1897.

Those in lighter shade indicate  
blocks dealt with during previous  
fourteen years









# Infantile Diarrhœa, 1897.

The Red Spots • indicate deaths from Diarrhœa, under the age of one year.



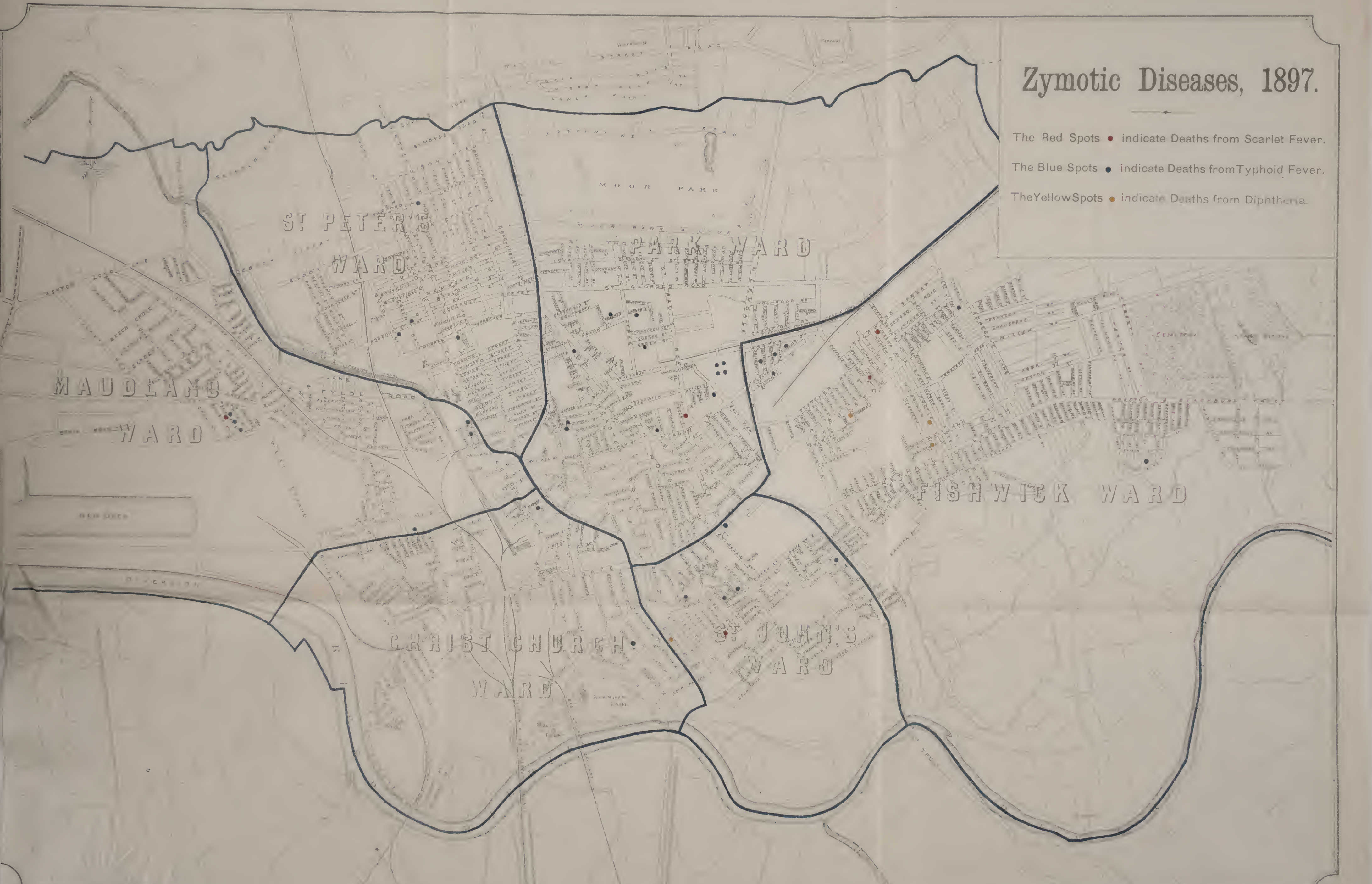






# Zymotic Diseases, 1897.

The Red Spots • indicate Deaths from Scarlet Fever.  
The Blue Spots • indicate Deaths from Typhoid Fever.  
The Yellow Spots • indicate Deaths from Diphtheria.

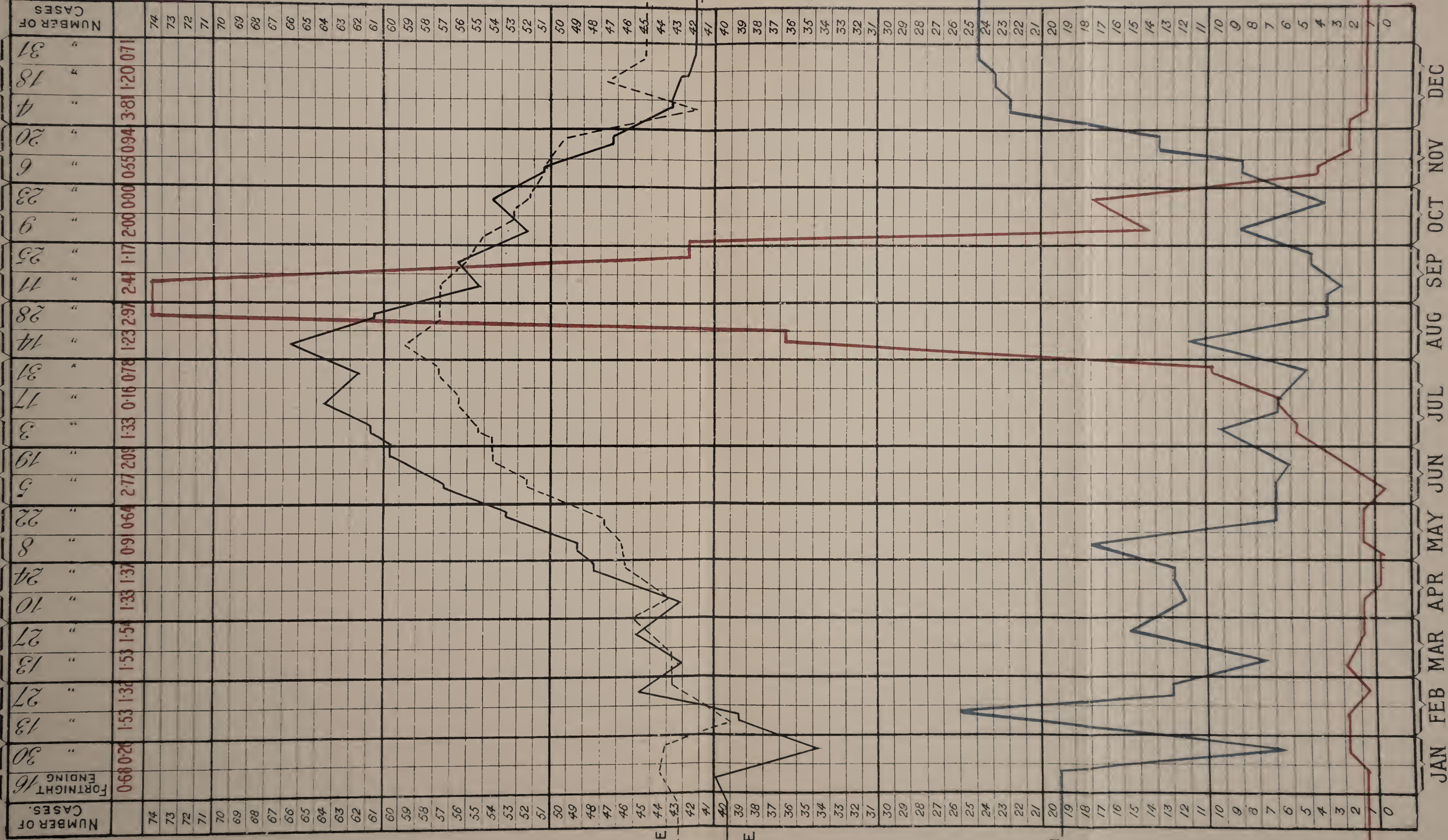








JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC



RAINFALL  
IN INCHES

EARTH TEMPERATURE  
4 FT.

MEAN DAILY  
TEMPERATURE

MORTALITY FROM  
BRONCHITIS.

MORTALITY FROM  
DIARRHOEA

RAINFALL  
IN INCHES.

EARTH TEMPERATURE  
4 FT.

MEAN DAILY  
TEMPERATURE.

MORTALITY FROM  
BRONCHITIS.

MORTALITY FROM  
DIARRHOEA









